DOCUMENT RESUME

ED 140 000 CE 011 091

AUTHOR Carpenter, John
TITLE Rationale for and Effects of Utilizing Both Qualitative and Quantitative Analyses in a Naturalistic Research Project.
NOTE 11p.; Paper presented at the Adult Education Research Conference (Minneapolis, Minnesota, April 1977)

EDRS PRICE MF-$0.83 HC-$1.67 Plus Postage.
DESCRIPTORS *Data Analysis; Educational Research; *Research Methodology; Research Projects
IDENTIFIERS *Naturalistic Research

ABSTRACT

This paper presents the rationale for and effects of utilizing both qualitative and quantitative analyses in naturalistic research. The specific research project examined was titled "Alternative Patterns for Strengthening Community Service Programs in Institutions of Higher Education." (The project was a 2-year nationwide study conducted through the University of Illinois at Urbana-Champaign and focused on alternatives used by decisionmakers in a variety of settings in which it was thought that strengthening and continuation of community service programs had occurred as a result of developmental efforts funded under title I (HEA, 1965). Data gathered from field interviews in six States were analyzed qualitatively through the use of content analysis and quantitatively through the use correlational and multivariate analyses.) The body of this paper describes the research approach used in the project in terms of the various activities that were undertaken, their relationships to each other, and why they were done, concluding that (1) the complementary use of qualitative and quantitative analyses provided a basis by which the results of the data analysis of the first and second years could be compared; and (2) when qualitative and quantitative findings from each year were compared, findings from the first year were generally substantiated and extended. (SH)

****
* Documents acquired by ERIC include many informal unpublished *
* materials not available from other sources. ERIC makes every effort *
* to obtain the best copy available. Nevertheless, items of marginal *
* reproducibility are often encountered and this affects the quality *
* of the microfiche and hardcopy reproductions ERIC makes available *
* via the ERIC Document Reproduction Service (EDRS). EDRS is not *
* responsible for the quality of the original document. Reproductions *
* supplied by EDRS are the best that can be made from the original. *
****

53

ED140000

U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
NATIONAL INSTITUTE OF EDUCATION
THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

John Carpenter
Institute of Government and Public Affairs
University of Illinois at Urbana-Champaign
217-333-3340

Rationale For and Effects of Utilizing Both Qualitative and Quantitative Analyses in a Naturalistic Research Project

Researchers in education, as well as in other disciplines, have long debated the relative merits and uses of qualitative and quantitative methods of data analysis. Some researchers have found that a combination of qualitative and quantitative methods may be used to good advantage, especially in naturalistic research. In naturalistic research, investigators take natural settings, already established and functioning, and add a data collection dimension so that they can draw conclusions about the relative effectiveness of various alternative patterns selected and implemented by decision makers in those settings. The purpose of this paper is to share with you the rationale for and effects of utilizing both qualitative and quantitative analyses in a specific naturalistic research project entitled "Alternative Patterns for Strengthening Community Service Programs in Institutions of Higher Education."

The study was designed to extend to a multi-state sample an exploratory process that had begun in a similar, related study in California. One of the objectives of the "Alternative Patterns..." study was to begin to systemetize knowledge about patterns and strategies that can strengthen community service programs in institutions of higher education and lead to their continuation once external developmental funds are no longer provided to an institution.

Although it was an exploratory study, the "Alternative Patterns..." study was a systematic inquiry which utilized both qualitative and quantitative analyses. The qualitative analyses reflected the exploratory and basically inductive nature of the study. The quantitative analyses provided a deductive component

CE 011 091

within the inductive orientation of the study. Thus, building theory was the principal goal of the study, but validating theory that was mainly inductively generated was an ongoing process accomplished primarily through the use of quantitative analyses. The interaction of the inductive and deductive approaches using qualitative and quantitative analyses will be the general theme of the comments which follow.

In order to facilitate an understanding of the research approach used in the "Alternative Patterns..." study, let me describe the various activities that were undertaken, their relationships to each other, and why they were done. The attached functional flow of activities chart may be a useful reference.

Many of the initial activities provided an information and theory base which affected the nature of later activities. Beginning in the first two months, literature related to Title I (HEA, 1965) was reviewed. Later, state guidelines, evaluations, and individual project reports in states where interviewing was to be conducted were read. Similarly, in-process consultations with the staff of the Community Service and Continuing Education Program of the U.S. Office of Education were initiated in the first two months of the study to facilitate the identification of relevant literature and the selection of appropriate interview sites. These consultations were conducted periodically to maintain communication and especially to acquaint persons involved at the national level with the study's emerging findings. Liaison with the staff of the related California study was established to share methododology, emerging findings, and conceptualization as the two studies progressed.

Sampling procedures were designed to ensure representativeness and to be consistent with the exploratory purpose of the study. Dimensional sampling (Arnold, 1970) was used to select the states and institutions within those states

from which data were obtained. The dimensions that were used for sampling purposes included the following:

1. Types of state guidelines for implementing Title I (HEA, 1965);
2. Geographical distribution;
3. Urban, suburban, and rural settings;
4. Types of institutions of higher education;
5. Types of community problems addressed;
6. Types of interviewee role perspectives within institutions of higher education.

The states included in the sample were selected partially on the basis of the above dimensions and partially on the basis of having successful state Title I (HEA, 1965) programs. The institutions within each state were selected on similar bases. The staff believed that more could be learned about the strengthening and continuation processes by examining states and institutions in which considerable strengthening and continuation reportedly had occurred.

The data were collected systematically in each state. Before field interviewing began in each state, a day-long transactive seminar was held, with the state Title I director, persons in the state knowledgeable about community problems and efforts to solve them, and members of the "Alernative Patterns..." staff participating. These seminars were designed to help identify trends affecting community service and continuing education in the state, and to help identify factors affecting specific institutional programs.

The actual field interviews, of which nearly three hundred were conducted during the two years of the study, utilized elite and specialized interviewing (Dexter, 1970). In this type of interviewing, the interviewer allows the interviewee to teach him or her what the problem, question, or situation is; it relies

on the interviewees' notion of what is relevant. The main function of the interviewer is to focus attention on a given experience and its effects rather than to ask specific questions.

Elite and specialized interviewing is done with an interview guide consisting of open-ended questions generated, in this study, from relevant literature, in-process consultations, and transactive seminars. The interview guide changed somewhat during the course of the study to reflect the developing knowledge of the strengthening and continuation process. While it remained inductively oriented throughout the study, it was used during the second year to check as well as to extend the findings of the first year.

The data analysis procedures were similarly refined during the course of the study. Initially, forms of content analysis (Merton, 1968) such as themetic analysis and structural analysis were used. The data were classified within inductively generated categories of themes, structures, and patterns. Each of these categories was then examined to determine its subcategories, its interrelationship with other categories, and its relationship to the data as a whole. In this process, the analysis focused on what had been reported in the interviews concerning the nature and extent of the strengthening and continuation outcomes and the factors that were found to facilitate or hinder these outcomes.

The amount and complexity of the data and the large number of inductively generated categories and subcategories made the qualitative analyses of relationships among and within categories difficult. The relationship of a few factors to certain outcomes in individual projects was understood. However, the complexity of the data meant that it was extremely difficult to determine the relative effect and importance of these factors and outcomes across projects and institutions using only qualitative analysis.

Recognizing the complexity of the data, the decision was made to utilize quantitative analyses to complement rather than to replace qualitative analyses. Initially, the quantitative analyses provided clues about the relationships among and within the outcomes and factors that had been qualitatively identified, and they provided a means by which the qualitative findings could be confirmed or denied. As the study progressed, quantitative analyses became increasingly important as a means by which to test findings and insights. Quantitative analyses, therefore, were used to suggest relationships and to confirm developing concepts and theories; they were not used primarily to generate new theoretical insights.

With the anticipated use of the quantitative analyses clearly in mind, the process of converting the qualitative data to a form useable in quantitative analyses was begun. Using individual Title I projects as the units of analysis, the categories (the strengthening and continuation outcomes and the factors effecting the outcomes) that had been inductively generated from the qualitative data had to be further refined and defined in order to permit a high degree of inter-rater reliability. Appropriate ways to measure these categories had to be determined.

The method by which the outcomes and factors affecting outcomes were measured deserves at least a brief description. For each Title I project examined, each outcome was rated (high, middle, or low) according to the degree to which strengthening or continuation had occurred. The increases in size, energy, and centrality were the criteria on which these judgments were made. The factors affecting the outcomes were rated in different ways, depending on their nature. Some were rated according to their degree of presence; these were dichotomous or limited choice factors for which only one rating was appropriate. Some factors were rated according to the presence or absence of their subcategories. For a few factors, subcategories were rated and a composite rating for each factor was obtained.

The identification and measurement of outcomes and factors after the second year utilized the experience of the first year. In the second year, a greater variety of factors was identified. More of the factors were rated to allow analyses of both their subcategories and their total effect. More comprehensive measures were desired because the qualitative analyses that were occurring simultaneously indicated that one dimensional ratings did not answer adequately some important questions.

The complementary nature of qualitative and quantitative analyses and the mixing of inductive and deductive approaches in this study are further illustrated by the pattern used to report the findings of the study. For each strengthening and continuation outcome and for each factor thought to affect these outcomes, the range of responses was reported. The qualitative findings and the quantitative findings were then presented and compared. The similarities and differences between the qualitative and quantitative findings and between the actual and expected findings were identified and discussed.

Although many types of analyses were used, the findings and conclusions of the study were generated primarily from the qualitative analyses and validated primarily by the quantitative analyses. The qualitative analyses utilized the statements of interviewees about the nature of the outcomes, the factors affecting them, and their interrelationships; these types of analyses were consistent with the basically inductive orientation of the study. The quantitative analyses, on the other hand, utilized correlations and multivariate analysis of variance (MANOVA) to test the insights derived from the qualitative analyses.

The conclusions contained in the final report of the study were developed through a series of successive approximations. While quantitative analyses played a secondary role in this process, they provided valuable, periodic feedback about the accuracy of the emerging conclusions and helped to keep the qualitative analyses on a productive path.

Because of the inductive and exploratory nature of the study, refinements in the methods and instruments of data gathering and analysis during the second year produced more precise and consistent results than in the first year. These refinements, for the most part, resulted from the increased understanding made possible by the complementary use of qualitative and quantitative analyses. For example, the process of quantification provided greater conceptual clarity by demanding precision in the identification of the conceptual categories and their subcategories. Greater attention was paid to the subcategories of the factors and to their relationships to the strengthening and continuation outcomes.

By providing focus to a complex study, the quantitative analyses resulted in the development of an interview guide that was more specific in the second year than in the first year. This interview guide, because of its sharper focus, facilitated the qualitative analyses of the strengthening and continuation outcomes and of the factors which affected these outcomes.

The complementary use of qualitative and quantitative analyses provided a basis by which the results of the data analysis of the first and second years could be compared. The findings from the first year's data were used to predict findings from the second year's data. When qualitative and quantitative findings from each year were compared, findings from the first year were generally substantiated and extended. Of course, the prediction could have been made using only qualitative analyses, but it would have been considerably less useful without the greater precision and inclusiveness made possible by quantitative analyses.

REFERENCES

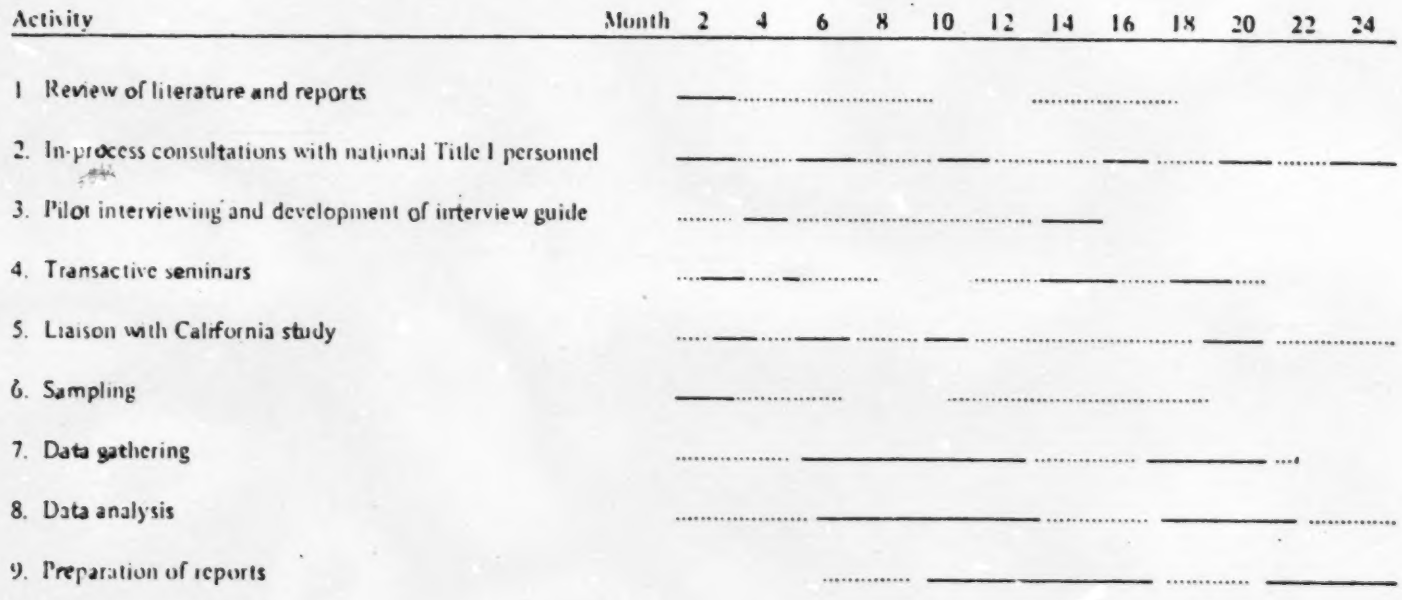
Arnold, D. L. "Dimensional Sampling: An Approach for Studying a Small Number of Cases." The American Sociologist, May 1970.

Dexter, L. A. Elite and Specialized Interviewing. Evanston, Illinois: Northwestern University Press, 1970.

Merton, R. K. Social Theory and Social Structure. New York: The Free Press, 1968.

John Carpenter
Government & Public Affairs
University of Illinois
Urbana, Illinois 61801
Phone: (217) 333-3340

Fig. 5: *Functional Flow of Activities.*


Activity
Month 2 4 6 8 10 12 14 16 18 20 22 24
1 Review of literature and reports
2. In-process consultations with national Title I personnel
3. Pilot interviewing and development of interview guide
4. Transactive seminars
5. Liaison with California study
6. Sampling
7. Data gathering
8. Data analysis
9. Preparation of reports
Legend: _____ indicates primary effort
..... indicates preliminary, follow-up, or ongoing secondary effort